CLASSIFICATION: **UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA5**				R-1 ITEM NOMENCLATURE Ship Self Defense (Engage: Soft Kill)/0604757N					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**0.000**	**41.301**	**28.064**	**35.517**	**35.002**	**33.566**	**34.231**	**CONT.**	**CONT.**
Shipboard EW Imp / K0954	**0.000**	**2.288**	**1.194**	**0.511**	**0.409**	**0.312**	**0.316**	**CONT.**	**CONT.**
NULKA/K2441/2190	* **0.000**	**0.526**	**1.015**	**1.083**	**1.080**	**1.094**	**1.112**	**CONT.**	**CONT.**
AIEWS / K2309/K2792/K2793	* **0.000**	**38.487**	**25.855**	**33.923**	**33.513**	**32.160**	**32.803**	**CONT.**	**CONT.**
Quantity of RDT&E Articles									

A. Mission Description and Budget Item Justification

This program element consolidates currently ongoing and planned programmatic efforts related to Engage: Soft Kill Electronic Warfare (EW) aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture performs marginally against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets.

*** See PE 0604755N**

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA5**	R-1 ITEM NOMENCLATURE Ship Self Defense/0604757N

These SSD projects address and coordinate the detect and engage functions necessary to meet the rigorous SSD requirements within a development structure dedicated to systems engineering.

(U) DETECTION: Improved coordinated sensor performance to increase the probability of detecting low altitude, low observable targets is to be achieved through the synergism gained from the integration of dissimilar sensor sources. Sensor improvements are addressed through the Shipboard EW Improvements (K0954) and Advanced Integrated Electronic Warfare System (AIEWS) (K2309) projects. These improvements to both active and passive detection capabilities are complementary to the ship signature reduction technology also being pursued through Shipboard EW (K0954).

(U) ENGAGEMENT: The offboard Active Decoy (NULKA, K2190) is a joint cooperative program between the United States and Australia to develop and engage an active offboard decoy which utilizes a broadbend radio frequency repeater mounted atop a hovering rocket. The Decoy is designed to counter a wide variety of present and future radar guided Anti-Ship Missile (ASM) threats by radiating a large radar cross section signal while flying trajectory.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA5**	R-1 ITEM NOMENCLATURE Ship Self Defense/0604757N

Program Change Summary:	FY 2001	FY 2002	FY 2003
FY 2002 President's Budget:		41.670	
Appropriated Value:		41.670	
Adjustments to FY 2001/2002 President's Budget:		-0.369	
FY 2003 Pres Budget Submit	0.000	41.301	28.064

Funding:
FY01: See PE 64755
FY02: Reduction of (-$.369) for Section 8123.

Technical: Not Applicable.

CLASSIFICATION: **UNCLASSIFIED**

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBE			PROJECT NAME AND NUMBER					
RDT&E, N	**Ship Self Defense 0604757N**			**Shipboard EW Improvements K0954**					
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**0.000**	**2.288**	**1.194**	**0.511**	**0.409**	**0.312**	**0.316**	**Cont.**	**Cont**
RDT&E Articles Qty									

PROGRAM DESCRIPTION/JUSTIFICATION:

The AN/SLQ-32(V) provides a family of modular shipborne electronic equipment which is installed in most combatants, CV/CVN, amphibs and auxiliaries in the surface Navy. The systems, which consists of five configurations, performs the mission of early detection, analyses, threat warning, and protection from anti-ship missiles. The (V)1 and (V)2 are computer controlled Electronic Support (ES) Systems that detect , sort, classify, identify and continuously display signals within frequency ranges. The (V)3 and (V)4 provide the capabilities of the passive system plus an integrated Active Electronic Attack (EA) response for all signals classified as a threat. The (V)5 provides for an EA capability on smaller class ships.

CINCLANTFLT/CINCPACFLT msg R091300Z Jul 99 identified the AN/SLQ-032(V) system as experiencing extensive operational and readiness deficiencies. JFCOM, PACOM, and EUCOM have all submitted Component Commanders Issue Papers (CCIP) stating the need to keep the AN/SLQ-32 viable. Development of targeted improvements, ES/EA enhancements, and techniques for new threats are all necessary to ensure future mission tactical suitability and viability until it is replaced by AN/SLY-2 in approximately FY 2020.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY01 ACCOMPLISHMENTS: NOT APPLICABLE

(U) FY02 PLAN: ($2.288) Initiate development of hardware and software to increase AN/SLQ-32(V) Anti-Ship Missile Defense (ASMD) effectiveness. The updates to hardware and software are needed to keep pace with Anti-Ship Missiles (ASMS) as they have evolved into more complex types of emitters. The environment in which the AN/SLQ-32(V) operates has become increasingly dense. The AN/SLQ-32(V) updates will also aid in handling the significant increase in density of emitters. Efforts will also enhance the AN/SLQ-32(V) functionality, which will result in increased capabilities to properly identify ASMD threats.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N	**SHIP SELF DEFENSE 0604757N**	**Shipboard EW Improvements K0954**

U) FY03 PLAN: ($1.194) Continue development of hardware and software to increase AN/SLQ-32(V) ASMD effectiveness through enhancement of Electronic Attack Attack capabilities. This will result in increased capabilities to counter ASMD threats through jamming, deception, and tactical integration and cooperative engagement countermeasures.

	FY2002	FY2003	FY2004	FY2005	FY 2006	FY 2007	To Complete	Total Cost
OPN BA-2 AN/SLQ-32(V) (231200/231205)	1.954	1.856	4.100	4.062	4.146	4.249	cont	cont
O&MN, EW, AN/SLQ-32 (12CR0)	1.364	1.406	1.477	1.553	1.580	1.620	cont	cont
O&MN,ASMD, ANSLQ-32 (1D4D)	7.349	7.403	8.129	8.319	7.309	7.200	cont	cont

C. Acquisition Strategy: Not Applicable

D. Schedule Profile: Not Applicable

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N** | PROGRAM ELEMENT: **Ship Self Defense 0604757N** | PROJECT NAME AND NUMBER: **Shipboard EW Improvements, K0954**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	RC/FFP	TBD	0.000	0.000		1.968	02/02	1.014	11/02	CONT	CONT	
Ancillary Hardware Development		Various	151.420								151.420	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			151.420	0.000		1.968		1.014		Cont	Cont	

Remarks:

Development Support Equipment											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data		R-1 SHOPPING LIST - Item No. 138 - 1 of 138 - 16									0.000	
GFE											0.000	
Subtotal Support			0.000	0.000		0.000				0.000	0.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N** | PROGRAM ELEMENT: **Ship Self Defense 0604757N** | PROJECT NAME AND NUMBER: **Shipboard EW Improvements, K0954**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation		Various	8.563								8.563	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			8.563	0.000		0.000		0.000			8.563	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WR	NSWC/CD & NRL				0.220		0.144		CONT	CONT	
Program Management Support	WR	NSWC/CD				0.100		0.036		CONT	CONT	
Program Management Support		Various	22.045								22.045	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			22.045	0.000		0.320		0.180		0.000	Cont	
Remarks:												
Total Cost			182.028	0.000		2.288		1.194		CONT	CONT	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA5**	PROGRAM ELEMENT NAME AND NUMBER **SHIP SELF DEFENSE 0604757N**				PROJECT NAME AND NUMBER NULKA DECOY/K2190/K2441				
COST ($ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	**0.000**	**0.526**	**1.015**	**1.083**	**1.080**	**1.094**	**1.112**	CONTINUING	CONTINUING
RDT&E Articles Qty									

A. (U) Mission Description and Budget Item Justification

The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy which utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA is designed to counter a wide variety of present and future radar guided Anti-Ship Missiles by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. Currently the United States is completing efforts to integrate with Ship Self Defense System (SSDS), maintain Electromagnetic Compatibility with shipboard emitters, and integration with the Advanced Integrated Electronic Warfare System (AIEWS). In order to maintain our effectiveness in countering both current and evolving threats, it is critical to maintain a continuous RDT&E budget for payload modifications and testing. This will ensure we provide the fleet with a proven and effective capability that they can have complete confidence in when called on to go in harms way.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments: N/A

2. (U) FY 2002 Plan:
- (U) ($0.526) Develop radar cued decoy launch capability. Start development of anti-tampering system for payload.

3. (U) FY 2003 Plan:
- (U) ($1.015) Continue development of anti-tampering system for payload.

NOTE: FY02 Plus-Up is reflected in PE - 0604755N.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA5	**SHIP SELF DEFENSE 0604757N**	NULKA Decoy/K2190/K2441

B. (U) Other Program Funding Summary
OPN Line 553000/553005
O&M,N Line 1D4D 14DR0

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
Anti-Ship Missile Decoy System	36.872	27.269	27.976	35.888	43.283	44.178	40.674	CONT.	CONT.
NULKA O&M,N	4.300	2.478	2.085	2.798	3.321	3.375	3.463	CONT.	CONT.

C. (U) Acquisition Strategy: N/A

D. (U) Schedule Profile: See Attached.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA5**	PROGRAM ELEMENT NAME AND NUMBER **SHIP SELF DEFENSE 0604757N**	PROJECT NAME AND NUMBER NULKA Decoy/K2190/K2441

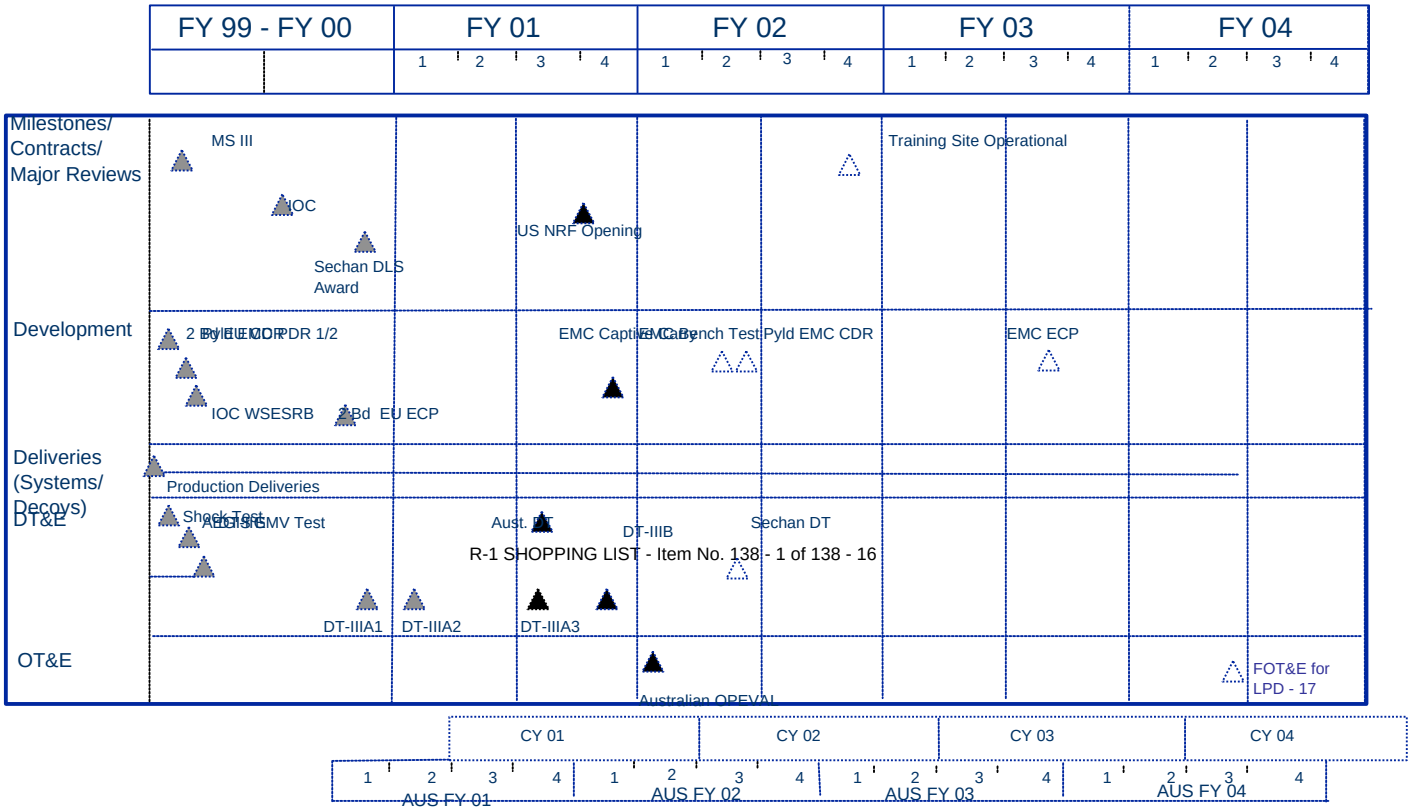

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Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2002**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA5**			PROGRAM ELEMENT **SHIP SELF DEFENSE 0604757N**			PROJECT NAME AND NUMBER NULKA Decoy/K2190/K2441						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	WR	NSWC Crane, IN						0.192	10/02	CONT.	CONT.	N/A
	WR	NSWC Dahlgren, VA				0.130	10/01	0.193	10/02	CONT.	CONT.	N/A
	WR	NSWC Port Hueneme, CA					01/02					
	WR	NRL Washington, DC				0.190	01/02	0.253	10/02	CONT.	CONT.	N/A
	SS/CPFF	Sippican Boston, MA					01/02				0.000	4.292
	SS/CPFF	BAeA, Australia					01/02				0.000	5.500
Subtotal Product Development			0.000	0.000		0.320		0.638		CONT.	CONT.	CONT.
Remarks:												
Support and Management	CC/CPFF	Anteon Arlington, VA				0.047	11/01	0.195	11/02	CONT.	CONT.	
Travel	Various	Various				0.079	10/01	0.090	10/02	CONT.	CONT.	
Miscellaneous	Various	Various				0.080	10/01	0.092	10/02	CONT.	CONT.	
Subtotal Support and Management			0.000	0.000		0.206		0.377		CONT.	CONT.	
Remarks:												
Test & Evaluation	WR	OPTEVFOR									0.000	
	WR	NSWC Pt. Mugu, CA.									0.000	
	WR	NRL Washington, DC									0.000	
Subtotal T&E			0.000	0.000							0.000	
R-1 SHOPPING LIST - Item No. 138 - 1 of 138 - 16												
Total Cost			0.000	0.000		0.526				CONT.	CONT.	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2002**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 5**	PROGRAM ELEMENT NAME AND NUMBER **Ship Self Defense / 0604757N**				PROJECT NAME AND NUMBER Advanced Integrated Electronic Warfare System (AIEWS)/K2309					
COST ($ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost		**0.000**	**38.487**	**25.855**	**33.923**	**33.513**	**32.160**	**32.803**	**Cont.**	**Cont.**
RDT&E Articles Qty										

A. (U) Mission Description and Budget Item Justification: Advanced Integrated Electronic Warfare System (AIEWS) is the next-generation Electronic Warfare (EW) system which will be an integral part of the ship combat system (AEGIS and Ship Self Defense System (SSDS)). AIEWS will be developed in two sequential increments. Increment 1 will introduce advanced Electronic Support (ES) consisting of precision Electronic Support Measures (ESM), Specific Emitter Identification (SEI) and special receiver, increased processing throughput, open architecture, a standard combat system workstation with new Human Machine Interface (HMI), decoy integration, and EMI improvements. Increment 2 will introduce both Radio Frequency (RF) and Infrared (IR) advanced Electronic Attack (EA) capabilities including advanced off-board decoys. This development will support both backfit and forward fit. The Engineering and Manufacturing Development (EMD) prime contract includes Engineering Development Models (EDMs) to be used for multiple purposes: factory qualification tests, Landbased Testing (LBT) and Operational Assessment (OA), Wallops Island B/L 7 and 6 and SSDS combat system interface testing, Combat System Engineering Development System (CSEDS) testing and TECHEVAL/OPEVAL.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY01 ACCOMPLISHMENTS: N/A

(U) FY02 PLAN:
- (U) ($27.987) Continue AIEWS Increment 1 EMD prime contract; complete EDM; Lab/Field Activity support included.
- (U) ($4.750) Continue Control and Processing System (CAPS) software development.
- (U) ($.965) Continue development of Increment 1 logistics efforts.
- (U) ($4.785) Continue test and evaluation efforts to support engineering, development and operational testing of Increment 1; perform Operational Assessment (OA) & transition to Low Rate Initial Production (LRIP).

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA 5	**Ship Self Defense / 0604757N**	Advanced Integrated Electronic Warfare System (AIEWS)/K2309

(U) FY03 PLAN:
- (U) ($12.835) Complete Increment 1 EMD; transition to production & evolutionary fulfillment of related AIEWS Operational Requirements Document (ORD) requirements; Lab/Field Activity support included.
- (U) ($1.823) Complete CAPS software development; support integrated HW/SW testing.
- (U) ($.576) Continue Increment 1 logistics efforts.
- (U) ($5.962) Continue test and evaluation efforts to support engineering, development and operational testing of Increment 1 through OPEVAL.
- (U) ($2.132) Initiate High Gain/High Sensitivity (HGHS) development effort.
- (U) ($2.527) Initiate Increment 2 EMD effort.

B. (U) Other program Funding Summary

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost
OPN 231300	0	0	15.808	16.136	19.159	33.100	33.304	CONT	CONT
AIEWS O&MN (14DR0)			1.738	1.721	1.686	1.711	1.755	CONT	CONT

C. (U) Acquisition Strategy: The AIEWS program awarded its Increment 1 EMD Cost Plus Award Fee (CPAF) contract based on best value as a result of a full and open competition. Included in the contract were phased price options for Increment 1 LRIP and production. Other options include Increment 2 EMD and LRIP for RF and IR countermeasures Options for full contractor support including Direct Vendor Delivery (DVD), Software Support Activity (SSA) and engineering services are also part of the contract. A special receiver capability HGHS will be separately developed and funded beginning in FY 03. HGHS Acquisition Strategy being developed for FY03 start.

D. (U) Schedule Profile: See attached schedule.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2002**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 5**	PROGRAM ELEMENT NAME AND NUMBER **Ship Self Defense / 0604757N**	PROJECT NAME AND NUMBER Advanced Integrated Electronic Warfare System (AIEWS)/K2309

AN/SLY-2(V) AIEWS PROGRAM SCHEDULE

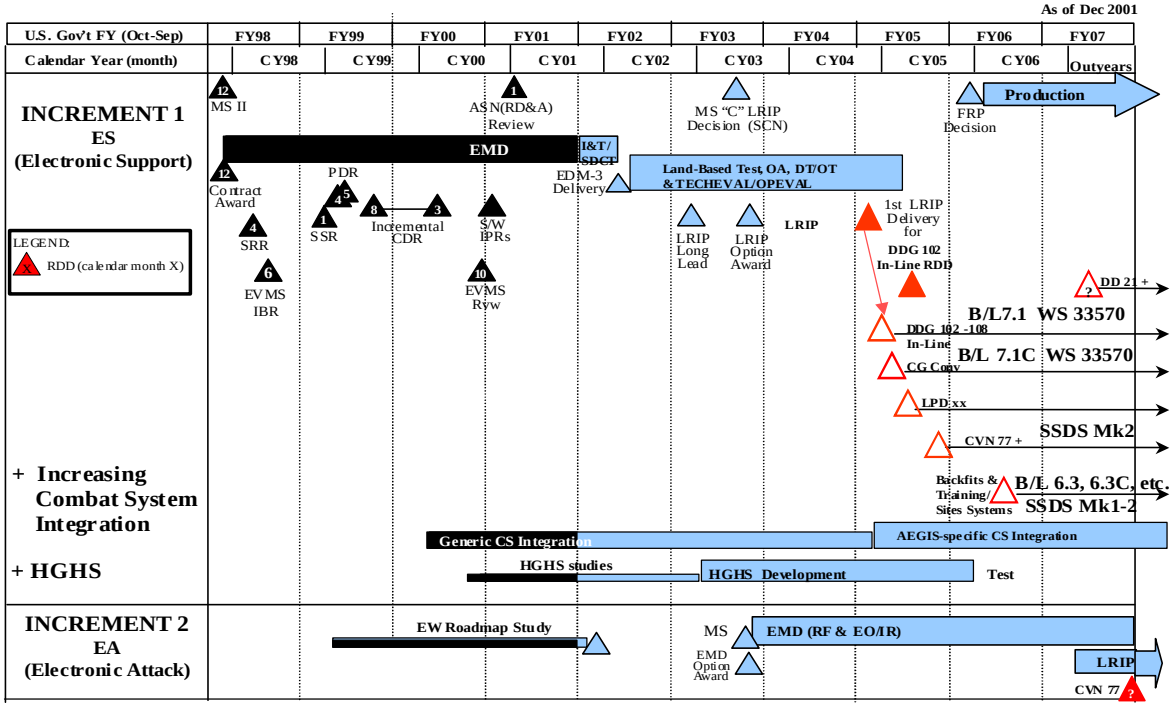

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/BA 5**

PROGRAM ELEMENT: **Ship Self Defense / 0604755N**

PROJECT NAME AND NUMBER: Advanced Integrated Electronic Warfare System (AIEWS)/K2309

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost *	Target Value of Contract
Hardware Development Inc 1	C/CPAF	LMIS Syracuse NY				22.960	12/01	5.938	12/02	3.523	TBD	TBD
HGHS Development	TBD	TBD				-	-	2.132	12/02	TBD	TBD	TBD
Hardware Development Inc 2	C/CPAF	LMIS Syracuse NY				-	-	2.527	05/03	TBD	TBD	TBD
Software Development	C/CPAF	DSR Fairfax VA				3.600	12/01	1.573	12/02	0.000	TBD	TBD
Systems Engineering	WR/RCP	NSWCDD				1.014	11/01	1.350	11/02	CONT	CONT	
Combat Sys Modification/Integration	Various	Various				0.274	03/02	-	-	CONT	CONT	
Miscellaneous	Various	Various				1.850	11/01	2.315	11/02	CONT	CONT	
Q-70 Procurement	FFP	LM/Eagan					N/A	-	-	0.000	0.000	N/A
Award Fees	C/CPAF	LM & DSR				1.172	08/02	0.716	06/03	1.829	CONT	N/A
Subtotal Product Development			0.000	0.000		30.870		16.551		CONT	CONT	

Remarks: * Total cost for Increment 1 hardware development includes basic EMD contract EAC plus options in progress.

Specialty Engineering												
Integrated Logistics Support												
Training		R-1 SHOPPING LIST - Item No. 138 - 1 of 138 - 16										
Technical Engineering Services	WR/RCP	NRL				0.878				CONT	CONT	
Miscellaneous	Various	Various				1.638				CONT	CONT	
Subtotal Support			0.000	0.000		2.516		3.028		CONT	CONT	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2002**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N/BA 5** | PROGRAM ELEMENT: **Ship Self Defense / 0604757N** | PROJECT NAME AND NUMBER: Advanced Integrated Electronic Warfare System (AIEWS)/K2309

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test Planning/T&E Events	WR/RCP	NSWCDD				1.184	01/02	0.662	11/02	CONT	CONT	
Miscellaneous	Various	Various				2.555	01/02	1.466	11/02	CONT	CONT	
Test Events (Aircraft Services	Various	Various				1.046	01/02	2.500	11/02			
								1.334				
Subtotal T&E			0.000	0.000		4.785		5.962		CONT	CONT	
Remarks:												
Program Management Support	Various	Various				0.155	10/01	0.150	10/02	CONT	CONT	
Travel						0.161		0.164				
Subtotal Management			0.000	0.000		0.316		0.314		CONT	CONT	
Remarks:												
Total Cost			0.000	0.000		38.487		25.855		CONT	CONT	
Remarks:												